


## Article

# ICT and the Sustainability of World Heritage Sites. Analysis of Senior Citizens' Use of Tourism Apps

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**Abstract:** Information and Communication Technologies (ICT) and applications (apps) for tourists are key tools for the sustainability of World Cultural Heritage Sites (WCHS). Their integration into tourism marketing strategies poses challenges regarding the satisfaction of the expectations of the target stakeholders, particularly senior tourists, people aged 60 and over. This paper adopts an exploratory and descriptive approach that combines qualitative techniques (focus groups), to study the use senior citizens make of ICT and tourism apps, with quantitative ones. In this sense, content analysis has been performed on a sample of tourism apps. The results reveal that ICT are essential tools for senior tourists and positively influence tourists' final perception of the travel experience. The analysis of these mobile apps shows that they meet the expectations of senior tourists, who constitute a relevant generation for cultural tourism and are of special interest for the sustainability of WCHS. The configuration and development of these tools must be adapted to this generation, which we call Generation W.

**Keywords:** apps; cultural tourism; cultural heritage site; experiential marketing; senior tourists; smart tourism; sustainability; tourism experience; web 2.0; world heritage

## 1. Introduction

The development of Information and Communication Technologies (ICT) over the past decades has conditioned the evolution of destination marketing and cultural and tourism communication. Smartphones have become necessary tools in tourists' interaction between the physical and digital world [1]. The growth of this expanding sector [2,3] has triggered the boom of mobile applications (apps), including tourism apps, a category that stands out for its large number of downloads [2]. This circumstance has generated growing interest in research in this area [4–7]. Tourism apps should provide value to users beyond the mere transformation of tourism services [6]. In this sense, their design and development require a marketing-based approach that grants all the protagonism to the needs and expectations of stakeholders [6,8] fundamentally with regards to the management of relationships [9]. The relational potential of ICT has derived in a new concept: Relational, Information, and Communication Technologies (RICT) [10], which are essential tools in destination promotion and marketing as they allow the tourist user to adopt the role of adprosumer [11], which is based on positive experiences that are the origin and driving force of relationships [12]. The concept of adprosumer (advertising, producer, and consumer) refers to a person who not only consumes products and services, but also determines how products and services are produced and advertised. This new figure has gained special prominence with the development of RICT, which not only enable these functions, but also multiply their potential and scope. Tourist adprosumers use RICT to plan their trips, to share on-travel experiences, and generate post-travel options that influence the brand

image and reputation of the destination [11,13]. Thus, RICT contribute to sustainable tourism through their communicational, relational, and experiential capacity [6,14–16]. The value of experience is a key element in the configuration and development of all cultural destinations. The intangible and eminently experiential nature of tourism products and services [7] and the fact that they cannot be tested before they are bought give great importance to the user's experience. In the tourist sector, the key is the experience resulting from all the travel stages: pre-travel (search of information, planning, decision-making), on-travel (experiences resulting from the use and consumption of the product or service, and the relationships established with the host community) and post-travel [9,13,17–19]. In addition, the value of experience has acquired more importance with the arrival of the model 2.0 [19,20] and its potential to multiply the reach of the traditional word of mouth [13,21] and the electronic word of mouth (eWOM), when focused in the digital field [22,23].

Having highlighted the importance of RICT in the tourism sector, including the cultural one, there are questions about the uses of RICT among different types of tourists, both real and potential, and, consequently, about the differences between digital immigrants and digital natives [24]. Both segments of the population constitute interesting groups for cultural destination marketing organizations [25–27] with different expectations and use of RICT [3,28,29]. To be precise, one of the fundamental questions posed by the literature review is whether the reorientation of the marketing strategies and tourist communication based on the web 2.0 model [1,14,18,30–34] should pay special attention to the Boomers (50–64 year-olds) and the Silent Generation (65 years and over) [35] or whether, based on the digital gap that characterizes them [35,36], they must be excluded from any approach adopted in the digital environment. In addition to this trait shared by both generations in relation to RICT, the desires and aspirations of both generations are defined by a greater concern for health over wealth. In fact, in order of importance, their interests focus on health, family, wealth, and professional career [35].

In general terms, the members of the Boomers and the Silent Generation [35] do not seem to identify themselves as tourists 2.0 according to their use of and relationship with RICT [36,37]. However, as noted in the study “Truth About Age” [38], age is losing validity as segmentation criterion for older people, so it is important to adopt a new approach that classifies the groups that belong to the same sociodemographic segment according to their behaviors, lifestyles, and media consumption habits [39]: especially considering that 78.6% of people aged between 65 and 74 claim to use smartphone and 30% claim to have access to the Internet [37].

This research focuses on senior citizens, people aged 60 and over, who are considered to be digital immigrants and part of the Boomers (50–64 years of age) and the Silent Generation (65 years and over) [35] since this segment constitutes “a new and profitable market opportunity for the tourism sector because of the unstoppable ageing of the world's population” [40] (p. 387) and its study and consideration is crucial to ensure the sustainability of cultural destinations. To be precise, this research focuses on Spanish digital immigrants aged 60 years and over. Our research objective is to analyze the ways in which senior citizens use RICT and, particularly, the apps designed and developed by Destination Marketing Organizations (DMO) to improve the cultural tourism experience while guaranteeing the sustainability of tourist destinations.

In view of the advantages of the tourism sector as a driving force for economic and social development [18,41–43], it becomes necessary for destinations to market quality products and services that do not negatively affect their natural, historical, and cultural assets [17]. The preservation of these assets poses an extremely significant and permanent challenge for DMO. In the field of cultural tourism, this view of the risk that entails the marketing of heritage sites has been addressed by several authors [44,45]. In this sense, the sustainability of tourist destinations appears as a controversial issue on which opposing positions have been expressed. The three-dimensional approach to the sustainability of tourism destinations adds the economic perspective, related to the necessary marketing of destinations, to the traditional social and environmental perspectives [46]. Sustainability allows destinations to develop a differentiating and singular positioning in an extremely competitive context [14,18]. In such context, RICT are particularly relevant due to their great potential to improve the experiences of tourists

in a sustainable way [47–49] a for the development of smart tourism [20]. This point highlights the importance and relevance of this study of the use of RICT, specifically tourism apps, by one of the main segments of cultural tourists: Boomers and the Silent Generation.

## 2. Theoretical Background

### 2.1. Apps in Destination Marketing and Communication Strategies

Apps have burst into the tourism industry, as proved by the growth of tourist apps, including those developed for: tourism destinations, products and/or services (museums, monuments, etc.), tourist companies (travel agencies), specialized tourism websites (Last Minute, Booking, Rumbo, etc.), and tourist in general (maps, route calculator, etc.). Their online presence is articulated around the interactive potential of mobile devices [4], since they offer tourists new experiences designed, managed, and controlled by DMO [50]. For these organizations, apps have become key communication channels for the success of their marketing and communication strategies, that improves the tourist experience and favours users' loyalty [14]. Content generation through tourism apps conditions the selection of the destination, the planning of the experience, the decision to purchase tourism products and services, and the dissemination of the experience lived.

In the field of cultural tourism, tourism destination apps often provide a full description of the destination and can become an essential channel for promotion and branding of cultural heritage, and also contribute to the generation of a positive image of the destination that informs the decision making process of all potential tourists [20].

From the point of view of tourists, tourism apps not only facilitate their decision-making process when selecting a destination but also determine, to a large extent, their behavior as adprosumers by allowing the establishment of two-way or multi-directional communication [6,15,16,51]. Tourism apps allow tourists to take virtual tours, and provide complementary information and access to rebuilt or missing spaces, among other services, anytime and according to their interests [6,7,20,52]. Thus, tourism apps provide advantages to the tourist user as well as to DMO, since they provide destination managers with necessary accurate and rigorous feedback and information to develop strategies for sustainable territorial tourism [52].

From a sustainability perspective, mobile technology in general is expected to contribute to the development of sustainable tourism that enhances its economic dimension [31,34,52] while resolving the challenges it poses in relation to its social and environmental dimensions [48]. These challenges include constant monitoring and evaluation of the interaction that occurs between the destination and tourists, to control their impact and identify their needs and expectations, which allows DMO to continue promoting tourism in a controlled manner, optimizing strengths and resources [52,53]. Therefore, tourism apps are presented as key tools in the development of sustainable and smart tourism that adds value to users [6,15,16,47], based on the common goal of improving the experience of real and potential tourists [54] before, during, and after the trip [52,55].

The paradigm shift that the digital society represents has transformed the marketing and communication strategies that aim to reinforce destination brands as well as the destination–tourist relationship [9]. Tourism apps enable two-way communication and relational management between users of the tourist product and DMO, which is key to consolidate, in the medium and long term, the territorial reputation of the tourist brand.

### 2.2. The Cultural Tourist and World Heritage Sites

The cultural tourist belongs to two groups of tourists: the anthropological and the hedonistic [56]. For both types, the emotions resulting from the tourism experience represent a key factor. With regards to the demographic profile of this tourist, it is between 20 and 30 years of age, has higher education, has chosen a liberal profession or job, has an income above the European average, and uses the Internet on a regular basis [25]. In response to this demographic criterion, we have a tourist who is part of the

Millennial generation [35,57]. However, from the necessary economic approach of the sustainability of tourist destinations [14,46], and in particular the cultural ones, there are older segments of stakeholders of great interest for these destinations. The average spending of cultural tourists aged between 45 and 64 is higher [25] than the younger segments, and different research works focused on heritage and cultural destinations have confirmed their importance [26,27]. These tourists are also regular users of mobile phones and apps [37,58]. Regarding their nationality, according to the latest data provided by the National Statistics Institute [59,60], domestic tourism in Spain continues to be far higher than foreign tourism.

Cultural tourism, linked to historical heritage, constitutes a key activity for the development of cities and sites that have been designated as World Heritage Sites (WHS) by UNESCO. This recognition can be a competitive advantage when DMO manage the value of the cultural assets of WHS in a sustainable way, guaranteeing their maintenance and preservation. On the other hand, public administrations, in their strategic development plans, have an influence in the imperative need to promote and revitalize these assets which represent their own identity as territory. To this end, DMO develop marketing and communication strategies aimed at the promotion and marketing of their products and services among specific population segments from an experiential and relational paradigm [17].

Based on the above, the following research questions have been established to guide the study:

- Q1. What role do RICTs and, specifically, tourism apps play in the cultural tourist trip (choice, planning, etc.) of senior citizens?
- Q2. To what extent do RICT and, specifically, tourism apps determine the perception of the experience resulting of the cultural tourism trip of senior citizens?
- Q3. Do the tourism apps of the Spanish World Cultural Heritage Sites (WCHS) meet the expectations of senior cultural tourists (in terms of features and functions)?

The following specific objectives derive from the previous research questions:

- O1. Describe the use senior citizens make of RICT and, particularly, of tourism apps in the stages of selection, planning, booking, buying, and visit of the tourist destination.
- O2. Determine the incidence of RICT and, particularly, of tourism apps in the final perception of the experience resulting from the tourist trip.
- O3. Identify the expectations of senior tourists with regards to tourism apps.
- O4. Analyze a sample of tourism apps developed for WCHS.
- O5. Compare the expectations of cultural tourists with the features and functions of the selected tourism apps.

### 3. Materials and Methods

#### 3.1. Research Design and Data Collection

In order to answer the research questions, we have designed a descriptive and exploratory study [61] of the tourism apps of WCHS and their use by senior tourists. To this end, quantitative and qualitative techniques have been combined, as has being previously done in tourism research to achieve relevant results that facilitate the understanding of the object of study [48].

Specifically, with regards to the first three objectives (O1, O2, and O3), which are focused on the use habits and expectations of senior citizens with respect to RICT and tourist apps, a qualitative technique has been chosen based on the nature of the variables of analysis and the relatively novel nature of the object of study in the academic field. In addition to the aforementioned research studies [48], this decision is justified by the features and advantages of qualitative research: an instrument or questionnaire specifically designed for the study, the key role of the direct participation and interaction between the researcher and the selected population, the inductive nature of the analysis, the flexibility in the research design, and its interpretive approach [61,62].

In relation to the other objectives, the fourth one (O4), relative to the analysis of the features and functionalities of the selected apps, requires a quantitative technique that allows the objective evaluation of those apps and the subsequent comparison of tourists' expectations with the features and functions of the selected tourism apps (O5). The inherent characteristics of quantitative techniques justify their choice for the analysis of tourism apps as they ensure an objective and deductive analysis, a structured design, and an explanatory perspective. The combination of qualitative and quantitative techniques contributes to the achievement of the general research objective, which is to study the features and functions of cultural tourism apps (quantitative) and their use and usefulness among senior citizens (qualitative) [61,62].

### 3.1.1. Qualitative Analysis

The focus group was selected as the most appropriate qualitative research technique to research the context and objects of the study, due to its low cost, the richness of the data it produces, and the extremely effective participation of the interviewee [63]. For Vieira and Zouain [64], (p. 15) “[... ] qualitative research attaches a fundamental importance to the detailed description of the phenomena and elements that surround it, the testimonies of the social actors involved, and the discourses, meanings, and contexts”. This technique has been previously applied in the same field of study [7]. This research involved three focus groups, each of which had a moderator and two observers who recorded in written form both the comments and the non-verbal communication of participants. The sessions were held in a lab, had a duration of two hours approximately, and were recorded with the consent of participants, to whom the objectives of the research were explained. The contents selected for analysis were structured in two blocks:

- The tourist profile of the focus group participants (the role they play in the selection and planning of the trip, preferred destinations, etc.).
- The relationship of tourists with RICT and tourism apps. To this end, we examined the online and offline sources and resources that they use in the different phases of the tourist journey (before, during, and after) and analyzed the expectations of the target regarding the features and functions of apps that can improve the tourist experience.

### 3.1.2. Quantitative Analysis

The focus groups were complemented with a descriptive analysis of the selected apps based on the systematic observation [65] of the tourism apps of the fifteen Spanish World Heritage Cities (SWHC).

The design of the coding sheet is based on the literature review [5–7,20,51,66] and the conclusions drawn from the analysis of the group's expectations in relation to tourism apps. It is a questionnaire structured in several sections such as ease to locate and download, characteristics, form of use, and functions (the full coding sheet is located in Appendix A Table A1).

An important aspect in the process of building research instruments is to guarantee their content validity, that is, their capacity to measure what they are supposed to measure. One of the most common modalities is to use the criterion of independent judges or experts who are asked to approve or reject the inclusion of items in the test. In this case, the selection of the items best suited for the research objectives was carried out by researchers in the field of tourist communication and a company that develops mobile apps in the field of cultural tourism. The definitive analysis was carried out jointly by two independent judges who coded all selected apps. To obtain reliable results, inter-rater reliability had to be greater than 0.8. The final inter-rater reliability (total number of agreements divided by the total number of ratings) was 0.91. Collected data were processed with SPSS V. 15.

Finally, the qualitative results regarding the use of RICT and, specifically, of tourist apps, derived from the focus groups were contrasted with the quantitative results of the analysis of the features and functions of the selected apps to determine how much they meet the expectations of senior cultural tourists.



### 3.2. Sample Profile

#### 3.2.1. Qualitative Analysis

Participants for the three focus groups were selected according to structural criteria, as required by this research technique [67]. In this case, participants were senior citizens who use the Internet and other digital channels for the selection, planning, and/or purchasing of the tourist destination, regardless of whether they use tourism apps or not. To select participants, we sent an invitation to all members of the Seniors and Mass Media Observatory (UPUA) who fulfilled the requirements described above. A total of 25 members agreed to participate (13 women and 12 men). The members of this Observatory are all Spaniards, although from different cities, which responds to the needs and scope of our research. All of them have their first residence in Alicante, where the three focus groups were carried out. This sample selection method for focus group participants has been used and validated in previous research carried out in the same sector [7]. Based on the previous variables, the requirement of homogeneity and internal heterogeneity of the group is also fulfilled [67]. Prior to each focus group session, the judges answered a brief survey to identify the demographic profile and use of the Internet, digital channels, social media, and apps, in general and in relation to tourism.

The composition of the focus groups is stratified by gender and age in the following way:

- Focus group 1:
  - Five women aged 60, 63, 73, 76, and 86
  - Four men aged 60, 63, 65, and 75
- Focus group 2:
  - Four women aged 62, 74, 77, and 82
  - Five men aged 60, 64, 66, 75, and 77
- Focus group 3:
  - Four women aged 62, 66, 71, and 75
  - Three men aged 63, 68, and 72

Odd numbers discourage the formation of groups of equal size, meeting the requirements of focus groups in terms of number of participants [63,67–69].

#### 3.2.2. Quantitative Analysis

Regarding the analysis of the tourism apps, the selection of the sample of tourist destinations was followed by the location of their respective apps. Smartphones that run on the Android operating system (version: 8.0) were used to visit the official websites of the SWHC from which the apps can be downloaded. All apps are available for Android OS, on the Google Play platform, and for iOS, on the App Store. The analysis focuses on the Android system because it is the most widespread among Spanish smartphone users [70]. Data collection ended in March 2019.

## 4. Results

### 4.1. Senior Tourists (60 and Over), Relational, Information, and Communication Technologies (RICT), and Tourism Apps

The results of the field work reveal the active role of this target in the selection and planning of the tourist trip, suggesting the absence of intermediaries (travel agencies, tour operators, etc.). It is worth noting that one of the participants (a 63-year-old woman) plans trips not only for her and her friends but also for acquaintances. The results also reveal great interest in and the good perception of WHS, especially the cultural ones. Most participants have visited all these sites, even more than once.

Together with cultural tourism, nature tourism stands out as well as the preference for destinations in central and northern Spain, which are the options to escape from mass sun and beach. However, for certain participants, their passion for travel is such that neither the destination nor the type of tourism is relevant:

[ ... ] I don't care if it's sun and beach, culture, gastronomy... I just want to travel (woman, 86 years).

[ ... ] Although I increasingly prefer cultural or nature tourism, I am open to any proposal (man, 60 years).

When rating destinations, all participants agree that after much travelling, they currently prefer less known and less crowded destinations in which they can enjoy the heritage, nature, gastronomy, customs, and popular traditions, as well as interaction with residents. This widely-shared idea is summarized by a participant who rates the travel experience as "therapeutic". Participants also agree that one of the values of tourism is surprise but believe that can also be surprised several times by the same destination. In fact, they claim they repeat destinations when the experience has been satisfactory. They visit it again and discover something new in each new visit. This opinion is expressed by some of the participants:

[ ... ] I have visited Toledo about 10 times and I always discover something new (woman, 77 years).

[ ... ] What matters is your attitude and desire, the destinations are an inexhaustible source of things to discover (woman, 62 years).

They also highlight the value and goodness of genealogy tourism and remark that they enjoy and savor every minute and every second of it, without the usual haste and anonymity of group tours, such as those organized by the Institute for the Elderly and Social Services (IMSERSO), which are negatively evaluated by the group as a whole. In general terms, participants claim to be fans of WCHS, but also admit that the overcrowding derived from tourism marketing and communication strategies has led them to opt for other cultural destinations that are not classified as WHS but offer a similar type of tourism.

The first research objective (O1) was to describe the use senior tourists make of RICT and, specifically, tourism apps during the stages of destination selection, planning, booking, buying, and visiting. In this field, the results show a clear integration of RICT in the tourist processes of the target public mainly in the pre-travel and on-travel phases. Before the trip, they choose the destination according to their knowledge, past experiences, recommendations of friends, etc. and in some cases contrast this information on the Internet (official websites of specialized companies, tourist platforms, etc.). They also use the web to search for information, and book and buy accommodation and transportation during the pre-travel phase. Almost all members of the group agree in this regard. One participant even highlights the role of RICT in a trip organized through a travel agent:

[ ... ] We recently took a trip to the north of Spain, in this case it was organized by a travel agency, but on our way back we decided to make a stop in Burgos. From there, we booked accommodation and planned the sites to visit all through the Internet. The truth is that we have got used to plan the trips ourselves (man, 72 years).

Regarding the influence of RICT, and particularly tourism apps, in the final perception of the travel experience, which is the second research objective (O2), the results show the positive contribution of the use of RICT to the trip as a whole. Senior citizens also indicated that they have used RICT to make on-travel decisions about sightseeing, local gastronomy, and spectacles, among other things, although they also emphasize their preference for printed information and for interaction with locals. For them, the visit to the tourist office, as well as conversations with locals, are essential parts of the trips and also significantly improve the final experience. In general, all participants have used RICT in relation to tourism, mainly in the pre-travel and on-travel phases, and agree that their use remarkably improves the final experience. There is also a great coincidence in this area, as the following participant perfectly summarizes it.

[ ... ] we use the Internet to obtain or confirm information about the destinations we have in mind and once we are there, we go to the tourist offices to collect plans, guides... We like to keep these materials as souvenirs of the trip, but we still use the mobile or tablet to locate streets, monuments, find restaurants (man, 63 years).

In general, all participants have used RICT in relation to tourism, mainly in the pre-travel and on-travel phases, and agree that their use remarkably improves the final experience. Senior citizens mention that they have experienced situations of dissatisfaction fundamentally derived from tourist products and services whose reality was far from the one advertised in the web, but also recognize that this circumstance has also occurred with offline resources and sources.

[ ... ] I have been more disappointed with trips organized by agencies than with the use of the Internet (female, 66 years).

Regarding the comments and experiences of other users, participants indicate that they do look up for the opinions of others but do not share their own experiences with others. Focusing on the use of tourism apps, none of the participants claims to have used these types of tools in relation to tourism. However, they remark that they have used apps designed for other areas of their daily life and have also used apps that are not focused on tourism during their travels (like WhatsApp and Google Maps).

In general terms, senior tourists consider that the use of smart mobile devices (tablets and mobile phones) improves the travel experience and that is why they use them. However, their use essentially focuses on searching through Internet browser apps. The lack of use of tourism apps is fundamentally due to ignorance and relatively little interest in trying them out and using them because of their deeply-rooted habits with respect to tourism. They identify themselves as a “reading generation” who is still passionate about printed materials: the tourism editions of general-interest magazines and newspapers’ travel supplements, like El País’s *El Viajero*, and the Michelin guides, etc.

Identify the expectations of senior tourists with regards to tourism apps was the third objective (O3) of this research. In this regard, the results indicate that what senior tourists value the most is information and guides. Regarding the information, they emphasize the importance of being accurate, updated and pertinent. They dislike informative materials saturated with irrelevant data that only complicate consultation and understanding. According to the results of the focus group, senior citizens’ preferred types of content include: information centered on the destination, its products and services, mainly places to visit (nature, urban spaces, etc.), culture and traditions (cultural events, leisure, etc.), weather, gastronomy, accommodation, transportation, etc. In short, all the information that facilitates the planning and enjoyment of the trip. Senior citizens also highlight the importance of accessibility. The majority of the group agrees that the main disadvantage of the mobile phone is the small screen size and the reading difficulties that this entails for them, which is a relevant aspect for their tourism practices, in which information and reading play a leading role, as reflected on their preference for printed materials. This opinion is expressed by one of the participants:

[ ... ] I had no idea that heritage sites had apps with guides and street maps, and I would really like to try them out, but I would never give up on my paper guides, which for me are a treasure, a beautiful memory of my travels (woman, 73 years).

Although relations and interaction with the environment, as well as with the group with which they travel, are key in the final perception of the travel experience, senior tourists show no interest in using apps to interact with other users or the destination managers. All they need, in this sense, is an app that allows them to communicate with their group for logistical purposes of the trip and that is provided by WhatsApp, which is the most used app in everyday life. They also highlight apps with calendar, health, exercise, and banking functions, as well as apps for weather and social networks.

Finally, senior participants showed a wide and rich experience in all kinds of trips, as well as great yearning and passion for sharing these experiences, demonstrating their value as adprosumers of tourist destinations.



#### 4.2. Analysis of Apps: Features and Functions

With regards to the fourth objective (O4), it was to analyze a sample of tourism apps representative of WCHS. The results were diverse in terms of downloads and ratings (Table 1). The number of times these apps were downloaded was not significant. Only Baeza, Mérida, and San Cristóbal de la Laguna have experienced an increase in the number of downloads. With respect to the rating, the average score is about 4/10, with Alcalá de Henares, Úbeda, and Santiago de Compostela scoring the highest (4.7, 4.7, and 4.8, respectively). None of them has the three largest number of downloads (Ávila and Mérida) or has experienced the biggest growth in downloads.

The apps of the SWHC are identical in terms of types and main function. All of them are interactive guides that offer users access to the destinations' cultural routes. These routes can be accompanied by subtitles, sign language, and audio-guides. This is the reason that all apps have obtained a similar final quantitative valuation. However, there are some differences in the ratings if we look carefully at the results obtained from the implementation of coding sheet (Appendix A Table A1) as shown in Figure 1.

**Table 1.** Sample of apps and main technical features.

Destination	App Name	Downloads		Rate (Average/5) 1/03/2019
		01/08/18	01/03/19	
Alcalá de Henares (AL)	Alcalá de Henares—Guía de turismo	+1000	+1000	4.7
Ávila (AV)	Avilla Turismo	+5000	+5000	3.8
Baeza (B)	Baeza—Guía de visita	+500	+1000	4.2
Cáceres (CA)	Cáceres	+1000	+1000	4
Córdoba (CO)	Córdoba—Guía de visita	+1000	+1000	3
Cuenca (CU)	Cuenca—Guía de visita	+1000	+1000	4.1
Ibiza (I)	Ibiza Ciudad	+100	+100	4.1
Mérida (M)	Mérida—Guía de visita	+1000	+5000	3.6
Salamanca (S)	Salamanca—Guía de visita	+1000	- <sup>1</sup>	
San Cristóbal de la Laguna (SCL) (SCL)	San Cristóbal de la Laguna	+100	+500	3.8
Santiago de Compostela (SAN)	Santiago de Compostela	+1000	+1000	4.8
Segovia (SE)	Segovia para todos	+5000	+5000	3.5
Tarragona (TA)	Tarragona accesible	+1000	+1000	3.7
Toledo (TO)	Toledo	- <sup>2</sup>	+1000	3.5
Úbeda (U)	Úbeda Turismo	+1000	+1000	4.7

<sup>1</sup> App not available <sup>2</sup> App not available.

The 15 apps barely surpass 13 of the 40 points, except for the app of Salamanca, which was not available to be evaluated. In general terms, all apps achieved the best scores in the following aspects: location and access, main function, and specific functions, although the results are truly positive only in the first case.

Regarding location and access, the apps analyzed are accessible from the SWHC website, have easily recognizable names, can be used in both Android OS and iOS systems, and are free. The differences lie in the fact some apps are not accessible from the official website of the destination. Moreover, it was confirmed that some members of SWHC have more than one app. In some cases, the destinations offer a set of diverse tourism apps (city council, tourism business associations, accommodation, transportation, etc.), in addition to those apps developed by the SWHC (Segovia, Úbeda, among others). In other cases, however (Córdoba, Santiago de Compostela, among others), the apps developed by the SWHC are not available and, in their place, there are apps that have received negative ratings in the Play Store, like in the case of Santiago de Compostela. The second parameter in the ranking of the best valued apps is “main function”, where there is no difference across apps. All of them achieved the same score because all of them aim to help users to visit the destination through detailed information to carry out the trip and to promote the trip during and afterwards. When viewing the routes, users can share with other users the information and contents on offer (Figure 2).

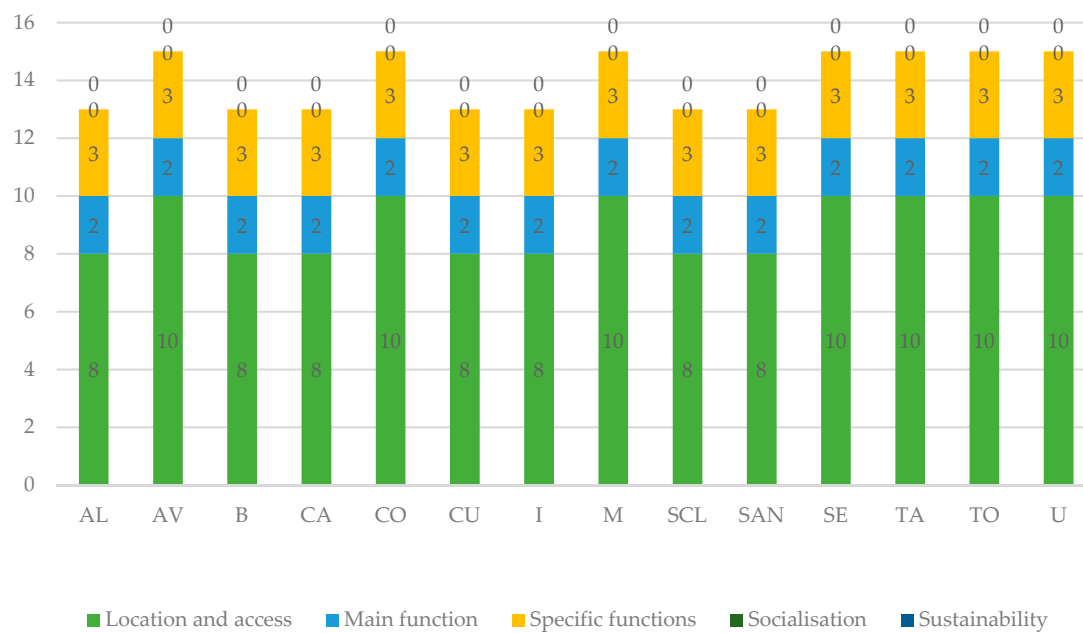


Figure 1. Quantitative evaluation of the features and functions of apps.

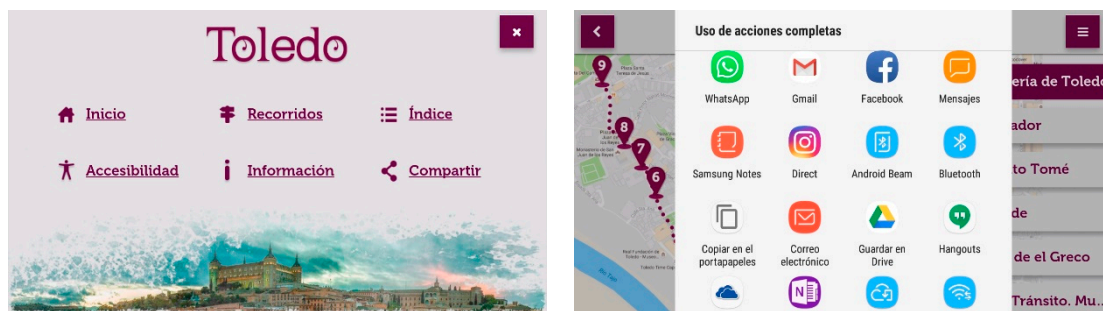


Figure 2. App Toledo (SWHC). Routes/Share.

None of the apps allows user-to-user interaction within or outside the app, except for the sharing of guides' information. Neither do they provide information or behavioral guidelines to educate and contribute to the care and preservation of cultural heritage sites.

Finally, the comparison of these results (O4) with the expectations of the target (O3) allows us to address the O5 as it confirms that the selected sample of apps meets the expectations of senior tourists, except when it comes to their desire for less crowded tourism. The routes integrated within the apps are the most emblematic of each destination and, consequently, the most overcrowded.

## 5. Discussion

The results of the research highlight the importance of senior citizens for cultural tourism and for WCHS and confirm the results of previous research works [40]. Focus group participants have shown great interest in cultural tourism and play a relevant role in the tourist traveling process regarding the destination choice and trip planning, which supports the characterization made of this population sector in different reports and studies [35,71]. Along with these coincidences, there are also some discrepancies in relation to the use of RICT. Focusing on the tourist sector, the results reveal that one cannot define senior citizens, the so-called boomers, and the Silent Generation [35], according to universal traits exclusively derived from the age variable, as the McCann Worldgroup [38] has warned. The focus group sessions confirmed that the digital gap does not apply to all members of the Boomers and the Silent Generation [35,36] since it has been shown that RICT are essential tools in their everyday

life and in their online tourism-related activities, which is in line with the results of different research reports [3,72].

These first conclusions allow us to answer the first research question (Q1) about the role of RICT in the cultural tourism (destination choice, planning, etc.) of senior citizens, and confirm that their use concentrates on the World Wide Web. None of the participants have used the selected tourist apps, although they do use apps for other facets of their life. The main reason for the lack of use is ignorance, which is confirmed by the small number of downloads of the selected apps. In this sense, it was observed that their expectations regarding RICT coincide with those of tourists as a whole and that the main functions performed of tourism apps (decision making and behavior in the destination [6,15,16,51]) are generally being performed in the World Wide Web.

With respect to the influence of RICT and tourism apps in senior citizens' final perception of the tourist travel experience (Q2), it is important to highlight that RICT are a determining factor in such experience among senior tourists.

Finally, with regards to the third question (Q3), it was confirmed that the selected apps meet the expectations of all research participants (information, guides, and community relations) regarding the guides, except for their desire for the inclusion of lesser known routes, which are outside the traditional circuits and add value to users beyond the mere replica of offline tourist services [6]. Senior citizens also wish apps would incorporate, in addition to information about the destination, its products and services [5] and information about the most-crowded periods and/or times to avoid, which not only serves to guarantee a more satisfying experience but also, thanks to their availability to travel, counteracts seasonality in the tourism industry, which in turn contributes to its sustainability. Regarding the information on the destination, it is advisable to incorporate new technologies (virtual reality, 3D, etc.) [5,32,44,45] because, although the population segment under study has not shown much interest in these formats, their predisposition to use RICT allows us to conclude that these new technologies will be appreciated. Finally, with regards to the features of tourist apps, the importance of their relational potential has been clearly established [1,2,31,44]. The selected apps do not exploit this capacity and the target public has not shown a particular interest in this possibility, however, we must insist on the desirability of promoting it and encouraging the conversion of this public into adprosumers by incentivizing their participation in virtual communities that are generated around tourist destinations [6,11,13]. It has been concluded that tourism must try to reach the largest possible number of age groups, including the elderly, by adapting its products and services to the needs of an increasingly older but eager and able to travel society [71]. This is an essential function and premise in the management of WCHS by DMO, together with the actions needed to eradicate the proven lack of awareness of tourism apps, promoting their use in this generation, not only as an experience enhancing tool [6,14–16] but also as a vehicle to boost the transformation of tourists into adprosumers. This group, representative of the Boomers and the Silent Generation [35], constitutes a key piece for the sustainability of WCHS. As has been found, this segment of tourists has great potential [40,71] due to their high level of engagement with WCHS. In addition, they have experience with WCHS that is of incalculable value for brands as a source of eWOM. To this end, it is crucial to encourage their participation in virtual communities, which senior tourists claim to consult but not to participate in. Their entry into these spaces, where they interact with other generations of digital immigrants and digital natives (Generation X, Y, Z, millennials, etc.), would propel eWOM and the potential of RICT to transmit cultural heritage, both material and immaterial, to the new generations, while promoting the sustainability of their respective destinations [46,52].

The importance of the Boomers and the Silent Generation in the tourism sector [40,71] and, thus, in the sustainability of the destinations [14,46], as well as their potential as tourists 2.0, have led us to propose a new conceptualization and the term "Generation W" to refer to them. This term is proposed as an extension of the generations X, Y, and Z, given that the denominator W is the link with RICT. This proposal is based on and refers to the hypothesis that the members of this generation are not silent [35] but have been silenced in the field of design and development of tourism marketing strategies, and

digital communication based on a digital gap [35,36], which has been established according to the age variable but has been already overcome [37,58]. Generation W is composed of men and women aged 60 years and over, with a lifestyle oriented to leisure and the enjoyment of life, with purchasing power and healthy enough to make tourism their preferred or main activity. For them, ICT pose a challenge and not a limitation. This approximation to people aged 60 years and over is one of the main contributions of this research, despite its non-existent relationship with tourism apps.

Apps can be an essential tool in the development of smart tourism [20]. To this end, it is crucial for all the agents involved: tourists, community, managers, etc. [30], to create a communication platform that provides the information and communication flows needed to ensure the effectiveness and relevance of decisions related to the development of sustainable tourism from a smart perspective [20]. As has been explained, apps offer a considerable communicational, relational, and experiential potential [6,14–17] that DMO should exploit through tourism apps that configure virtual spaces where their stakeholders can communicate and relate. This lays the foundations for the development of smart tourism, by providing DMO with access to important information regarding the needs, desires, and expectations of stakeholders, as well as their conflicts and discrepancies. In addition, this virtual space must enable communication and interaction between DMO and all stakeholders. Smart tourism requires dynamic platforms and enhanced decision-making support systems to foster interconnection between communities and destinations [2,20,30]. Consequently, information and communication are essential for the development of smart tourism, and tourist apps can play a key role in this process.

## 6. Conclusions

RICT are essential tools in the preparation and planning phases of the trip, as well as during the trip itself. The W generation uses RICT on the pre-travel phase to book accommodation and transportation and for the localization and search of products and services. In this sense, of the RICT available, tourism apps are a key tool with enormous relational and experiential communication potential that DMO should exploit. These advantages seem to have been accepted by the main tourist destinations, although we cannot confirm this in the specific case of the tourist apps that are the object of this research, which continue playing the informative role typical of the Web 1.0 and of the premises of transactional marketing and one-way communication. Likewise, the importance of senior citizens in the cultural tourist industry has been confirmed, as well as their necessary consideration in digital marketing and communication of DMO, given their relationship with RICT, which has led us to poses a new definition that surpasses the traditional approach of the digital gap: the W generation.

The DMO of the SWHC face the challenge of adapting the integration of tourist apps in their marketing and communication strategies under the premises of relational and experiential marketing and the consideration of the W generation. The design and development of tourist apps from this marketing perspective should avoid focusing exclusively on tourists and ensure the sustainability of the destinations. These apps have the ability to improve the tourist experience and generate positive eWOM, but can also promote a relationship between tourists and between tourists and residents and serve as a tool for the continuous monitoring and evaluation of the interaction that occurs between tourists and destinations, their products, services, residents, and other tourists, to control their impact but also to identify their needs and expectations in order to continue enhancing tourism in a controlled manner and optimizing forces and resources.

The establishment and maintenance of relationships between the SWHC and their stakeholders is an essential factor for their sustainability, which has gained greater importance in the current context as a result of the relational potential of RICT. This protagonist role has resulted in the emergence of disciplines centered on relationships such as e-Relationship Marketing (e-RM). These disciplines and similar ones use RICT to favor the competitiveness of tourism companies and to improve the management of the relations with their stakeholders. However, the development of e-RM strategies requires in-depth knowledge of the different stakeholders regarding RICT, including apps, to establish,

as discussed throughout this paper, the features and functions that they have to offer to contribute to the generation of satisfying tourist experiences.

In this sense, it is necessary to recognize the limitations of our research regarding the analyzed public. First, with regards to Generation W, whose relevance within the *stakeholders* of all WCHS and use of RICT (but not tourism apps) has been confirmed, it is necessary to complement these first qualitative results with quantitative data obtained from a statistically representative sample.

Second, it is necessary to integrate the perspective and view of community residents. The study has confirmed the importance that the Generation W grants to the advice and recommendations of the residents of the destination, so their incorporation in the apps would certainly contribute an added value. Third, it is equally pertinent to triangulate the results with an analysis of the destination managers and the marketing strategies and digital tourist communication. DMO should provide the context and content necessary for stakeholders to choose, plan, and live the tourist travel experience satisfactorily, and to establish relationships with each other and with the community, without negatively affecting the social and environmental sustainability of the destination, favoring its economic dimension. These relationships should also be monitored, and the derived conclusions should be integrated in the ongoing marketing and communication strategies to ensure the achievement of the strategic objectives.

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## Appendix A

**Table A1.** Coding sheet for the analysis of tourism apps.

Parameters and Indicators	Description and Analysis Items	Rating Scale
<b>Location and access</b>		
Location on the Website of the SWHC	Is the app easily located? The assessment focuses on whether the corporate website of the SWHC includes links to the app and whether these links are accessible and usable	
	Is there a to download the app on the website?	No: 0/Yes: 1
	Is the link easily located on the website?	No: 0/Yes: 1
	Is the link operational?	No: 0/Yes: 1
Location on the Website of WCHS	Is the app easily located? The assessment focuses on whether the institutional tourism websites includes links to the app of their respective destinations and whether these links are accessible and usable.	
	Is the link easily located on the website?	No: 0/Yes: 1
	Is the link operational?	No: 0/Yes: 1
Suitability of the Name	Does the name of the app contribute to the easy and quick identification of the brand? A suitable name does not use acronyms, diminutives, or other formulas that can cause confusion in the user.	No: 0/Yes: 1
Versions and Adaptation	For what systems is the app available? Apps must be developed to be run on the main operating systems	
	App Store.	No: 0/Yes: 1
	Google Play.	No: 0/Yes: 1
	Other (specify).	No: 0/Yes: 1
Free or Paid	Can the app be downloaded and used in full free of charge or does it include payment features or has a paid version (freemium), or is it a paid app (specify the cost)	Free: 2/Freemium: 1/Payment: 0
<i>Global rating of location and access: the previous results are added</i>		



Table A1. Cont.

Parameters and Indicators	Description and Analysis Items	Rating Scale
<b>Location and access</b>		
<b>Main Function</b>	This section evaluates the main function of the app	
	Planning: mainly provides information about the destination (text content, graphic materials, etc.). Pre-travel	No: 0/Yes: 1
	Action: allows the user to search, arrive, buy, etc. On-travel.	No: 0/Yes: 1
	Dissemination: Is it used to disseminate and share the experience. On and Post-travel	No: 0/Yes: 1
<i>Overall rating of the main function: the previous results are added</i>		
<b>Specific Functions</b>	This section evaluates whether the app offers the general functions well valued by users in general and tourists in particular	
	Information (agenda, resources, etc.)	No: 0/Yes: 1
	Tourist guides	No: 0/Yes: 1
	Entertainment (games).	No: 0/Yes: 1
	Internal user-user interactivity: web-based content generation (comments, ratings, etc.)	No: 0/Yes: 1
	External user-user interactivity: web-based content generation (comments, ratings, etc.)	No: 0/Yes: 1
	Internal user-admin interactivity: communication channels with the app developers (consultations, ratings, comments, etc.).	No: 0/Yes: 1
	Image gallery	No: 0/Yes: 1
	Geolocation.	No: 0/Yes: 1
	Online reservation: does the app allow the user to book products and services online?	No: 0/Yes: 1
	Online payment.	No: 0/Yes: 1
	Does the app support more than one form of online payment (credit card, PayPal, etc.)?	No: 0/Yes: 1
	Other (Specify).	No: 0/Yes: 1
<i>Overall rating of specific functions: the previous results are added</i>		
<b>Socialisation</b>	This section evaluates the capacity of the app to enable users to establish relationships with other users	
	Does the application offer access to social networks?	No: 0/Yes: 1
	If the answer to the previous question is YES, specify the social networks supported:	
	Whatsapp.	No: 0/Yes: 1
	Facebook.	No: 0/Yes: 1
	YouTube.	No: 0/Yes: 1
	Instagram.	No: 0/Yes: 1
	Twitter.	No: 0/Yes: 1
	Spotify	No: 0/Yes: 1
	LinkedIn.	No: 0/Yes: 1
	Pinterest.	No: 0/Yes: 1
	TripAdvisor.	No: 0/Yes: 1
	Foursquare.	No: 0/Yes: 1
	Minube.	No: 0/Yes: 1
	Other (Specify).	No: 0/Yes: 1
<i>Overall rating of socialisation: the previous results are added</i>		
<b>Sustainability</b>	This section evaluates whether the app provides information and advice that aim to contribute to the care and preservation of cultural heritage.	No: 0/Yes: 1

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